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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,828	09/26/2003	Fred C. Porter	6978-225/COB	1323
27572	7590	03/03/2004	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			LEWIS, TISHA D	
			ART UNIT	PAPER NUMBER

3681

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/672,828	PORTER, FRED C.	
	Examiner	Art Unit	
	TISHA D. LEWIS	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The following is a first action on the merits of application serial no. 10/672,828, filed on September 26, 2003.

Information Disclosure Statement

The information disclosure statement filed on September 26, 2003 has been acknowledged. The reference copies are provided in the parent application 10/083,941.

Specification

On page 1 of the specification in paragraph [0001], the status of the parent application should be updated (i.e., now patent no. 6,626,787 issued September 30, 2003).

Claim Objections

Claims 3, 4, and 12 are objected to because of the following informalities:

-In claim 3, line 9 and claim 4, line 7, "valve" should be changed to --value--.

-In claim 12, line 7, "y" should be changed to --by--.

-In claim 12, line 19, "clip" should be changed to --slip--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As to claims 7 and 12, it is unclear as to what the

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transfer mechanism in the second driveline is referring to in line 3. In the specification, page 5, lines 1-3 [0018], the torque transfer device is referred to as the drive axle assembly and the transaxle (20) is in the primary driveline, not the secondary driveline. If the PTU (26) is suppose to be referred to as the transfer mechanism, then this should be clarified.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Mohan et al ('682). As to claim 1, Mohan et al discloses a motor vehicle including:

a powertrain (Figure 12),

a primary driveline for transferring drive torque from the powertrain to a pair of primary wheels (304),

a secondary driveline for selectively transferring drive torque from the powertrain to a pair of secondary wheel (310), the secondary driveline including a hydraulic coupling (10, 220) and a differential assembly (318) interconnecting the secondary pair of wheels, the coupling having an input member (14) driven by the powertrain, an output member (16) driving the differential assembly, a transfer clutch (12) operably disposed

between the input and output member, a clutch actuator (20) operable to engage the clutch for transferring drive torque from the input to output member in response to fluid pressure in a pressure chamber (22), a pump (18) for pumping the fluid from a sump (26) to the pressure chamber, and a control valve (36) for venting fluid from the pressure chamber to disengage the clutch in response to an occurrence of an over pressure or over temperature condition (column 8, lines 25-42).

As to claim 2, Mohan et al discloses the coupling having a first flow path (24) between the sump and the pump, a second flow path (30) between the pump and the pressure chamber, and a third flow path (32) between the chamber and the sump wherein the control valve is located.

As to claim 3, Mohan et al discloses the control valve having a first chamber (124) in fluid communication with the sump, a second chamber (132) in fluid communication with the pressure chamber, a valve member (160) moveable between a first position preventing fluid flow between the first and second chambers and a second position permitting fluid flow between the chambers, a biasing device (148) for biasing the valve member and a mechanism (138) for moving the valve member to the second position when the fluid temperature in one of the chambers exceeds a predetermined value.

As to claim 4, Mohan et al discloses the control valve having a first chamber (124) in fluid communication with the sump, a second chamber (132) in fluid communication with the pressure chamber, a valve member (144) moveable between a first position preventing fluid flow between the first and second chambers and a second

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position permitting fluid flow between the chambers when the fluid pressure in the chambers exceeds a predetermined value.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the first embodiment (Figure 2) of Mohan et al in view of the second embodiment (Figure 9). Mohan et al discloses (Figure 2) the clutch actuator being a piston assembly (20) disposed for movement in the pressure chamber (22), but does not disclose the control valve mounted to the piston assembly.

Mohan et al (Figure 9) discloses the clutch actuator being a piston assembly (230) disposed for movement in a pressure chamber (268) and wherein a control valve (228) is mounted to the piston assembly (Figure 10) and includes a moveable valve member (270) for selectively controlling release of fluid from the pressure chamber in response to an over pressure or temperature.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the first embodiment of Mohan et al with the second embodiment to reduce the amount of control functions the control valve has to perform during operation of the coupling (column 8, lines 56-61).

Claims 6-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al in view of Burns et al ('939) and Shibahata et al ('071). As to claim 6, Mohan discloses a differential assembly (318) having an input member driven by the output member of the coupling (Figure 12 shows two alternatives where the coupling 10, 220 can be placed), and a pair of output members (312) driving the secondary wheels (310), but does not disclose a biasing clutch for limiting the speeds between the output members, although Mohan et al does disclose that this type of clutch can be used for limiting speeds (column 3, lines 1-6) in a differential.

Burns et al discloses a motor vehicle having a hydraulic coupling for a differential assembly having an input member (17), a pair of output members (12, 14) driving secondary wheels and a biasing clutch (22) for selectively limiting speed differentiation between the output members.

Shibahata et al discloses a differential assembly having an input member (208) driven by an output member of a hydraulic coupling (220), a pair of output members (212) driving secondary wheels, and a biasing clutch (211) for limiting differentiation speed between the output members.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the hydraulic coupling device of Mohan et al with the differential assembly having a hydraulic coupling device in view of Burns et al and Shibahata et al to transmit drive power from the powertrain to rear drive wheels of the vehicle (column 13, lines 35-38 of Shibahata et al).

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As to claims 7, 10 and 11, Mohan et al discloses a motor vehicle including:
a powertrain (Figure 12),
a first driveline having a first pair of wheels (304) driven by the powertrain,
a second driveline having a transfer mechanism (308) driven by the powertrain
and a drive axle assembly (10, 220) transferring drive torque from the transfer
mechanism to a second pair of wheels (310), the drive axle including an input member
(14) driven by the transfer mechanism, an output member (16), a transfer clutch (12)
operably disposed between the input and output member, a piston (20) disposed in a
piston chamber (22) and actuable to engage the transfer clutch for transferring drive
torque from the input to output member, a pump (18) for pumping hydraulic fluid from a
sump (26) to the piston chamber, and a control valve (36) for venting fluid from the
piston chamber to the sump in response to an occurrence of an over pressure or over
temperature condition (column 8, lines 25-42), first and second output shafts (312)
adapted for connection to the second pair of wheels (310) and a differential assembly
(318) including a casing driven by the output member (16) (Figure 12 shows two
alternatives where the coupling 10, 220 can be placed),

but Mohan et al does not disclose a second transfer clutch for limiting the speeds
between the output members, although Mohan et al does disclose that this type of
clutch can be used for limiting speeds (column 3, lines 1-6) in a differential.

Burns et al discloses a motor vehicle having a hydraulic coupling for a differential
assembly having a gear set (17, 18) for connecting a casing (16) to a pair of output
shafts (12, 14) driving secondary wheels, a transfer clutch (22) for selectively limiting

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speed differentiation between the output shafts, a piston (50) disposed in a piston chamber (52) which is actuable in response to fluid pressure in the piston chamber to engage the clutch, a pump (20) for pumping fluid from the sump to the chamber and a control valve (86) for venting fluid from the piston chamber to the sump in an occurrence of over temperature or over pressure conditions.

Shibahata et al discloses a differential assembly having an input member (208) driven by an output member of a hydraulic coupling (220), a pair of output members (212) driving secondary wheels, and a transfer clutch (211) for limiting differentiation speed between the output members.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the hydraulic coupling device of Mohan et al with the differential assembly having a hydraulic coupling device in view of Burns et al and Shibahata et al to transmit drive power from the powertrain to rear drive wheels of the vehicle (column 13, lines 35-38 of Shibahata et al).

As to claim 8, Mohan et al discloses the coupling having a first flow path (24) between the sump and the pump, a second flow path (30) between the pump and the pressure chamber, and a third flow path (32) between the chamber and the sump wherein the control valve is located.

As to claim 9, Mohan et al discloses the control valve having a valve chamber (124) in fluid communication with the sump, a flow port (162) providing fluid communication between the piston chamber and valve chamber, a valve member (160) moveable between a first position preventing fluid flow between the first and second

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chambers and a second position permitting fluid flow between the chambers, a biasing device (148) for biasing the valve member and a mechanism (138) for moving the valve member to the second position when the fluid temperature in one of the chambers exceeds a predetermined value.

As to claims 12-15, Mohan et al discloses a motor vehicle including:

a powertrain (Figure 12),
a first driveline having a first pair of wheels (304) driven by the powertrain,
a second driveline having a transfer mechanism (308) driven by the powertrain
and a drive axle assembly (10, 220) transferring drive torque from the transfer mechanism to a second pair of wheels (310), the drive axle including an input member (14) driven by the transfer mechanism, an output member (16), a transfer clutch (12) operably disposed between the input and output member, a piston (20) disposed in a piston chamber (22) and actuable to engage the transfer clutch for transferring drive torque from the input to output member, a pump (18) for pumping hydraulic fluid from a sump (26) to the piston chamber, and a control valve (36) for venting fluid from the piston chamber to the sump in response to an occurrence of an over pressure or over temperature condition (column 8, lines 25-42), first and second output shafts (312) adapted for connection to the second pair of wheels (310) and a differential assembly (318) including a casing driven by the output member (16) (Figure 12 shows two alternatives where the coupling 10, 220 can be placed),

but Mohan et al does not disclose a second and third transfer clutch for limiting the speeds between the output members, although Mohan et al does disclose that this type of clutch can be used for limiting speeds (column 3, lines 1-6) in a differential.

Burns et al discloses a motor vehicle having a hydraulic coupling for a differential assembly having a gear set (17, 18) for connecting a casing (16) to a pair of output shafts (12, 14) driving secondary wheels, a first and second transfer clutch (22, 22') for selectively limiting speed differentiation between the output shafts, a first and second piston (50, 50') disposed in a first and second piston chamber (52, 52') which is actuatable in response to fluid pressure in the piston chambers to engage the clutches, a first and second pump (20, 20') for pumping fluid from the sump to the chambers.

Shibahata et al discloses a differential assembly having an input member (208) driven by an output member of a hydraulic coupling (220), a pair of output members (212) driving secondary wheels, and a transfer clutch (211) for limiting differentiation speed between the output members.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the hydraulic coupling device of Mohan et al with the differential assembly having a hydraulic coupling device in view of Burns et al and Shibahata et al to transmit drive power from the powertrain to rear drive wheels of the vehicle (column 13, lines 35-38 of Shibahata et al).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 10, 11, 12, 17, 18, 23, 25, 29, 30, 32 and 34 of U.S. Patent No. 6,626,787. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present application broadly claims the features of the above patent having a drive axle assembly for a motor vehicle with a first, second and third transfer clutch (first, second and third hydromechanical coupling) having an input member (input shaft), an output member (pinion shaft), a first, second and third piston disposed in a first, second and third piston chamber, a first, second and third pump and a first, second and third control valve for venting fluid from the piston chambers to a sump in response to an over temperature or over pressure condition (other common limitation: first, second and third flow paths, a differential assembly).

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Submission of your response by facsimile transmission is encouraged. Group 3600's facsimile number is **(703) 872-9326 before final and 703-872-9327 after final**. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence **not** permitted by facsimile transmission, see MPEP 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check **should not be** submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MPEP 512). The following is an example of the format the certification might take:

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(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MPEP 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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-Japanese patent 11263140A is cited as having a four wheel drive vehicle using a double clutch differential with a pump assembly providing fluid control to a control valve assembly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TISHA D. LEWIS whose telephone number is 703-305-0921. The examiner can normally be reached on M-Thur 8 AM TO 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHARLES A. MARMOR can be reached on 703-308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tdl
March 1, 2004


Tisha D. Lewis
Primary Examiner
Au 3681 3/1/04